Patent claims

1. A fuel feed unit for feeding fuel from a fuel tank, having a fuel pump drawing in fuel from a swirl pot, a suction jet pump feeding fuel from the fuel tank into the swirl pot, and a pump fluid line led to the suction jet pump from the delivery side of the fuel pump, **characterized in that** a pressure-dependent volume flow reducing valve (13, 14) is arranged in the pump fluid line (11, 12) for restricting the fuel volume flow delivered to the suction jet pump (5, 6) as the delivery pressure of the fuel pump (4) increases.

2. The fuel feed unit as claimed in claim 1, **characterized in that** the volume flow reducing valve (13, 14) has a piston (18), preloaded by a spring element (19) against the delivery pressure of the fuel pump (4), that the piston (18) is displaceably arranged in a duct (22) and that a cross-section of an annular gap arranged between the piston (18) and the duct (22) diminishes as the piston (18) is moved against the force of the spring element (19).

3. The fuel feed unit as claimed in claim 1 or 2, **characterized in that** the piston (18) has a section (20) with a widening, preferably conical, cross section opposed to a control edge of the duct (22).

4. The fuel feed unit as claimed in any one of the preceding claims, **characterized in that** the duct (22) has a widening, preferably conical section (21).

5. The fuel feed unit as claimed in any one of the preceding claims, **characterized in that** the volume flow reducing valve (13, 14) has an opening (17) provided for arrangement in the fuel tank (1) and that the side of the piston (18) remote from the delivery pressure has a connection to the opening (17).

6. The fuel feed unit as claimed in any one of the preceding claims, **characterized in that** piston (18) is preloaded by means of a spring element (19) into its position opening up the pump fluid line (11, 12).

DE 195 04 217 A1 discloses a fuel feed unit having a suction jet pump, in the pump fluid line of which a pressure valve is arranged, downstream of which is a separately arranged restrictor. The function of the pressure valve is to open the pump fluid line only once a specific is attained.

The object of the invention is to develop a fuel feed unit of the aforementioned type so that an unnecessary fuel feed to the suction jet pump is avoided, particularly in demand-controlled feed units.

According to the invention this object is achieved in that a pressure-dependent volume flow reducing valve is arranged in the pump fluid line for restricting the fuel volume flow delivered to the suction jet pump as the delivery pressure of the fuel pump increases.

This design means that as the delivery pressure of the fuel pump increases the delivery of fuel to the suction jet pump via the pump liquid line is maintained or restricted. The suction jet pump can therefore be designed for a low fuel pump delivery capacity. Should the delivery capacity of the fuel pump increase due to a rising demand requirement from the internal combustion engine, the volume flow reducing valve reduces the delivery of fuel to the suction jet pump by way of the pump fluid line. This serves to prevent any unnecessary delivery of fuel to the suction jet pump. This allows the fuel feed unit according to the invention to be of especially compact design. The small amount of fuel fed inside the fuel tank furthermore minimizes any permeation of fuel into the surroundings.

According to an advantageous development of the invention, the volume flow reducing valve is of particularly simple design if the volume flow reducing valve has a piston, preloaded by a

spring element against the delivery pressure of the fuel pump, if the piston is displaceably arranged in a duct